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REAL EDUCATION FOR THE REAL WORLD

Habashi forges Concordia exchange with Russian science institutes

by Donna Varrica

Scientists from Canada, Russia and the Commonwealth of Independent States will collaborate, with eventual input from other European countries.

A Montréal delegation to Moscow, headed by Mayor Jean Doré and including Mechanical Engineering Professor Wagdi Habashi and former Chairman of the Board of Governors, P. André Gervais, has signed agreements of intent for scientific cooperation with four leading Russian universities and research institutes.

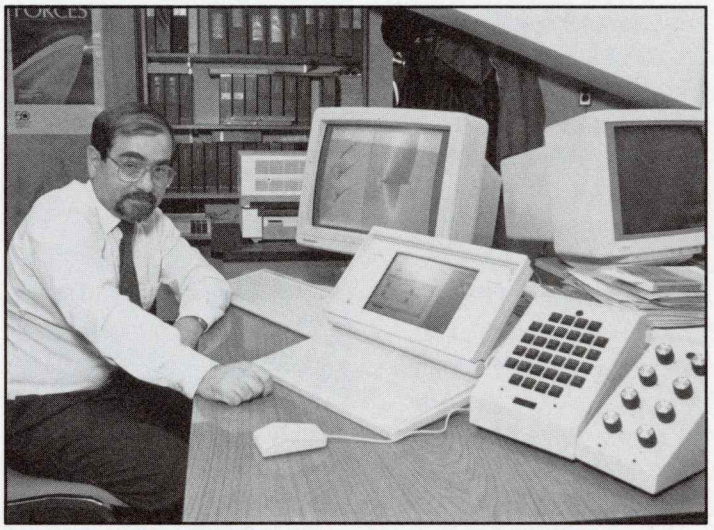
Moscow Mayor Youri Louzhkov and Doré approved the Concordia agreements with Moscow State University, the Moscow Aviation Institute, the Steklov Institute of Mathematics and the Zhukowsky Research Academy in the presence of the deputy minister for science, higher education and technological policy for the Russian federation.

Helped set up ICAS

Habashi was also instrumental in securing the agreement to create the International Centre for Aerospace Sciences (ICAS). The Centre will have its headquarters in Montréal, with a branch in Moscow. Scientists from Canada, Russia and the Commonwealth of Independent States will collaborate, with eventual input from other European countries.

It was Habashi's third trip to Russia, the second to study the feasibility of setting up the ICAS.

"We met the who's who of Russian industry and science, including the President of the Academy of Sciences. These are people who *want* to collaborate. Many scientists there are sitting idle because their economy is stalled. There are entire institutes not being used," he said.



Mechanical Engineering Professor Wagdi Habashi

PHOTO: Owen Egan

"This agreement would facilitate the exchange of personnel and technology. There are many companies who are interested in taking advantage of this exchange."

Good for both countries

Habashi emphasized that this agreement does not mean that money will be spent in Russia at the expense of Canadians, but rather "it will allow our money to be better spent, benefiting the economy of both countries. It will also allow new scientific and high-tech commercial ventures to be initiated."

Upon his return, Habashi was invited by Programme Director T.S. Sankar to meet the executive committee of the aerospace consortium of the new Master's programme in Aerospace Engineering to discuss ways of developing contacts with the Moscow Aviation Institute.

Habashi is the Director-Industry for the Centre de recherche en calcul appliqué (CERCA), which carries out research in the field of computational methods, in close collaboration with leading industries.

He is also the head of Concordia's Computational Fluid Dynamics Laboratory and in 1988 received the coveted E.W.R. Steacie Memorial Fellowship from the Natural Sciences and Engineering Research Council (NSERC) for his research work in computational aerodynamics.

recycled paper

Educating us about race relations

Corinne Jetté awarded Order of Canada

BY BARBARA BLACK

The history teacher said, 'Of course, Indians are second-class citizens... — and I flew into a rage."

Professor Corinne Mount Pleasant-Jetté of the Faculty of Engineering and Computer Science can date the birth of her activism quite precisely.

"I was in a Grade 10 classroom at Father MacDonald High, and I'd only been in the school for two weeks. The history teacher said, 'Of course, Indians are second-class citizens. . .' — and I flew into a rage."

Jetté has been a lecturer in technical writing in the Faculty of Engineering and Computer Science for 13 years. That's her day job. But her research and advocacy in race issues has steadily grown and deepened. Today, she is carefully listened to by the people who run this country, and in gratitude, they are awarding her the Order of Canada.

Jetté is one of 75 Canadians chosen from all walks of life who will receive the award this year at a Government House ceremony.

She is the third person associated with Concordia to become a member of the Order; the others are organist Bernard Lagacé and painter Yves Gaucher.

Professor Corinne Jetté

PHOTO: Jonas Papaurelis

Jetté is not only delighted with the honour, but pleased because it is an acknowledgment at the highest level of the issues she has fought so hard for.

Although brought up in Montréal, she was born on Canada's largest reserve, the Six Nations, at Brantford, Ont. Her people, the Tuscaroras, were the smallest and last of the nations to join the Iroquois confederacy.

She takes a strong interest in the community of native students at Concordia, particularly those who enroll in her Faculty, and in support organizations like the Concordia Council for First Nations Education. Her own professional specialty is an ideal tool, since many native students express the need for better writing skills.

Jetté is involved in the proposed Chair in Intercultural, Ethnic and Race Relations Studies, a joint initiative of Concordia and the Université du Québec à Montréal, which was awarded a start-up grant in 1991 of $400,000 by the federal Department of Multiculturalism and Citizenship.

$1 million CIDA grant for project with JUST

BY SYLVAIN COMEAU

Concordia's Faculty of Engineering and Computer Science and Jordan University of Science and Technology (JUST) have formed an alliance designed to help boost that country's domestic economy through education and technology transfer.

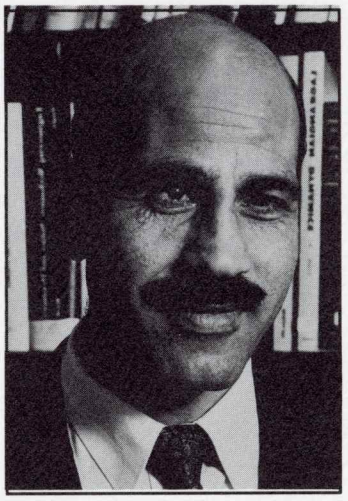
"JUST was established in 1986 specifically to promote economic development," said JUST Vice-President Ahmad Abu-El-Haija. "We are not very rich in natural resources, so our emphasis is on developing the technology and manufacturing sectors. This kind of initiative fits very well into our overall strategy."

Abu-El-Haija was in Montréal last November to hammer out some of the details of the ambitious five-year project. He met with project-director T.S. Sankar, Professor and Special Co-ordinator (Research and External Relations) for the Faculty of Engineering and Computer Science.

The programme will train JUST professors to establish a series of industry-oriented courses in manufacturing technology, with emphasis on efficient and cost-effective production methods. Concordia has received a 5-year $1 million project grant from the Canadian International Development Agency (CIDA), which has already sponsored a Concordia delegation to Jordan.

The initiative taps into the experience of both institutions. In its brief six-year history, JUST has launched a telecommunications project with the University of Ottawa, a nursing project with the University of Windsor (both CIDA-funded) and a co-operative project with Texas Tech.

Concordia's Faculty of Engineering and Computer Science, for its part, has forged many ties with industry, and will be completing a CIDA-sponsored joint doctoral programme in 1995 with China's Southeast University.



Ahmad Abu-El-Haija, vice-president of the Jordan University of Science and technology (JUST), who visited Concordia in November. PHOTO: Jonas Papaurelis

Exhibition targets youngsters

Science of the times

BY SYLVAIN COMEAU

You can't take the lab out of science, but you *can* take science out of the lab.

Hundreds of visitors to a two-day Concordia exhibition in Pointe Claire learned just that, as the arcane and intimidating workings of science and engineering were brought down to earth.

"We worked to find a way to represent each Faculty in a way that would give people a chance to do a hands-on experiment, like plaster models of fossils that people can handle and then identify by name and age," Concordia Chemistry Chair and organizer Robert Pallen said. "We didn't want just videos or pictures on the wall."

Although the exhibition was open to all, it was mainly directed at children. About 5,000 flyers were distributed in local schools to attract young and impressionable minds.

"You have to get people interested in science as early as possible," Pallen said. "Studies have found that most people have pretty much decided what they want to do in life by the time they're 14. So if it isn't science by then, we've probably lost them."

The hands-on aspect of the exhibition was therefore crucial to captivate easily bored nine-year olds.

Heat loss detector

The Centre for Building Studies (CBS) demonstrated an infrared camera used to detect heat leakages in buildings.

"Thanks to technology, there is much more science in building today than before," said graduate student Hanqing Wu. "Using sensitive instruments, we can test the wind speed around a building, defects in the material. And in a cold country like Canada, where people have to stay indoors a lot, improving energy efficiency and air quality in buildings helps improve living standards."

Besides piquing interest in the sciences, many of the exhibits were also geared to impart a low-key environmental message.

Mechanical Engineering was a natural for demonstrations. PhD student Yanlai Wu gave children the chance to measure the revolutions per minute of a small motor.

"Engineering applies many of the principles of the other sciences represented here. When they find out this motor is similar to the one in their parents' car, they are instantly interested. There's a natural fascination with the inner workings of everyday objects."

PHOTO: Cliff Skarstedt

Tile layer does job easily, more efficiently

Good vibrations

BY BUZZ BOURDON

It's tile-setting at the touch of a button.

Concordia Mechanical Engineering Professor George Abdou has helped develop the Val-Tile Layer, a machine that picks up a marble or ceramic tile and lays it easily and more efficiently by vibrating it into place.

"The machine's legs are adjusted to the size of the tile," Abdou said. "The suction cups use compressed air to pick up the tile. The worker then moves both machine and tile to where the tile is required."

Activated by the press of a button, the layer then vibrates the marble into place. The ergonomic engineering of the machine allows it to be operated in any position, whether on a horizontal, vertical or inclined plane. The layer can handle a tile that weighs up to 80 pounds.

The new vibration technique has proved to be the breakthrough, said Abdou, who served as the engineering advisor for Val-Tile Tool Inc., the Windsor-based company that manufactures the $1,600 machine.

The company produces about 15 layers a month, mainly for sale to construction contractors.

100% bonding

As the tile is vibrated, Abdou said, the air underneath it is forced out. This improves the "weltability" between the tile and the adhesive.

Abdou said about 22 seconds of vibration is needed to settle a two-foot-square marble tile. It takes about five days for the tile to bond properly.

It's a big improvement, he said, because doing it by hand takes up to 64 taps using a wooden hammer. Also, tapping can leave air pockets under the slab, which can lead to looseness and cracks.

"You don't know the bonding strength because there's always places [on the tile] you didn't tap," Abdou said. "With the machine, you get 100 per cent bonding strength over 100 per cent of the tile's area."

The Val-Tile Layer has been on the market for about two years in North America and in various parts of Europe. Val-Tile Tool Inc. guarantees users that its seven-pound machine (28 pounds with the carrying case) will double their productivity.

Abdou is now working to develop a smaller version of the layer, which would use electricity rather than compressed air. It is expected to sell for $300 to $400.

Roy Bonin new Director of Libraries

PHOTO: Jonas Papaurelis

BY BARBARA BLACK

Concordia University has a new Director of Libraries, Kenneth Roy Bonin.

He comes to Concordia full of enthusiasm and eminently suited to his post, which had been vacant since Al Mate retired in June 1990.

A Franco-Manitoban, Bonin taught school in that province for several years before becoming a librarian. He has graduate degrees in European history, (from the University of Alberta), library administration (from Drexel University, in Philadelphia), and university administration (from the University of Toronto).

Oversaw new library

He comes to Concordia from Université Laurentienne/Laurentian University in Sudbury, Ont., where he oversaw the building of a new library, an all-absorbing five-year task. He has spent the past year on sabbatical from Laurentian, finishing his doctorate on the public financing of post-secondary education.

Aptly for Concordia, which is just beginning to automate its collection, he has managed automated library systems as long ago as the late 1970s, in Winnipeg.

Bonin started his five-year appointment on January 1. He takes over the reins from Acting Director Irene Sendek, who continues as Assistant Director.

Faculty Development Fund

Again this year, members of the Engineering and Computer Science Faculty Development Fund Committee, chaired by the Dean, have decided to allocate the funds raised through the Faculty Affiliation Programme to reward students on the Dean's Honour list.

This in-course award is granted to any full-time Engineering or Computer Science student with an overall minimum G.P.A. (Grade Point Average) of 3.7. A $250 prize accompanies this award.

Faculty Spotlight

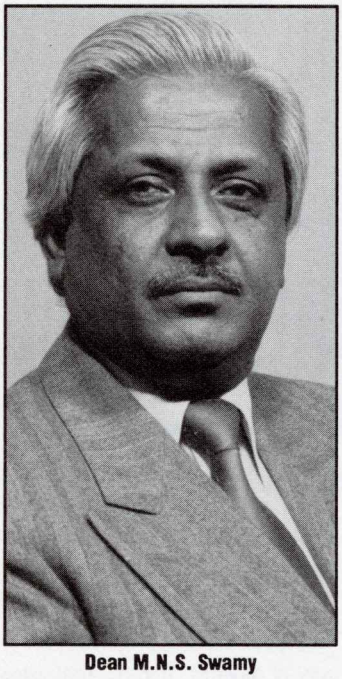
- Professor Krishnaiyan 'K.T.' Thulasiraman of the Department of Electrical and Computer Engineering is Technical Programme Chair for the 1993 Institute of Electrical and Electronic Engineers (IEEE) International Symposium on Circuits and Systems (ISCAS'93). The symposium of the IEEE Circuits and Systems Society is an annual event that attracts more than 1,000 researchers from all over the world. It features refereed technical papers dealing with all aspects of the field and applications including VLSI design, video technology, image processing and parallel processing. ISCAS '93 will be held in Chicago.
- Computer Science Professor Clement Lam was presented with the Lester R. Ford Award by the Mathematical Association of America (MAA) for expository articles published in the *American Mathematical Monthly*. The award is named for a distinguished mathematician who was editor of the learned journal in the 1940s and was twenty-second president of the MAA. The article, "The Search for a Finite Projective Plan of Order 10," leads readers through a 200-year history of developments bearing on the problem of the existence of a projective plan of order 10, as well as Lam's quest for the solution.
- Anna Tam, a PhD student in Mechanical Engineering, has been awarded the prestigious Zonta International Amelia Earhart Fellowship Award for the 1992-93 academic year. The fellowship is open to women who are pursuing graduate studies in aerospace-related sciences and engineering. Only 35 fellowships are awarded annually and each $6,000 (U.S.) grant is renewable. Tam's doctoral studies are under the supervision of Mechanical Engineering Professor W.G. (Fred) Habashi.
- CERCA (Centre de recherche en calcul appliqué) was created through the collaboration of Concordia, McGill, École Polytechnique and the Université de Montréal, as well as several industry partners. It is headed by Mechanical Engineering Professor W.G. Habashi, who hosted the conference *l'Ordinateur: un laboratoire*. Participants came from Québec, Belgium and France.

A message from the Dean:

Tremendous progress in our Faculty's short history

After serving sixteen years as Dean of the Faculty of Engineering and Computer Science, I am stepping aside and returning to full-time teaching and research, which I have always enjoyed. It is indeed with a sense of pride and satisfaction that I am doing so, after having been able to achieve most of the goals and objectives that I had set forth for the development of the Faculty. I was able to do so only because of the full support, dedication and hard work of the faculty members, staff and students, to whom I convey my sincere appreciation and thanks. I would like to take this opportunity to highlight a few of the major achievements and advances that our Faculty has made since 1977.

1. Introduction of the full-time M.Eng. programme.
2. Introduction of the innovative B.Eng. programme in Building Engineering, the only one of its kind in the country, and Computer Engineering, one of the first three to be accredited in Canada;
3. Introduction of a major option in Industrial Engineering within the Mechanical Engineering programme (with appropriate funding from Québec), which later was converted to a full-fledged B.Eng. programme.
4. Changing the title 'Faculty of Engineering' to 'Faculty of Engineering and Computer Science' to reflect the importance of Computer Science within the Faculty; we are unique in this in the county.
5. Creation of a number of high-tech research centres such as CONCAVE (Concordia Computer Aided Vehicle Engineering), Centre for Pattern Recognition and Machine Intelligence, and Centre for Signal Processing and Commu- nications.
6. Introduction of a diploma as well as a Ph.D. programme in Computer Science, the latter being fully funded from Québec.
7. Introduction of Co-op formats in Building Engineering and Computer Science undergraduate programmes.
8. Creation of an Aeronautical option in M.Eng. (Mech.) in collaboration with École Polytechnique and McGill, again with funding from Québec.
9. Introduction of M.A.Sc. programmes to distinctly identify the research-oriented Masters' programme.
10. Developing new international links with many top institutions in Japan, India and China. In particular, obtaining a $0.5 million CIDA grant, a first such grant received by Concordia, to start a unique joint doctoral programme between our Faculty and Southeast University in China.
11. Introduction of a unique industry-driven M.Eng. programme in Aerospace, in partnership with other Québec universities and the local aerospace industry.
12. The total research income rose to over $ 6.6 million in 1991-92 as compared to 1.42 million in 1977-78. During the same period, the total professorial strength rose from about 80 to over 115, while the number of degrees awarded rose to 224 B.Eng., 75 B.Comp.Sc. and 70 graduate degrees (including 16 Ph.D.'s) from 130, 41, and 34 respectively.



Dean M.N.S. Swamy

While I will be leaving this office after sixteen years with great satisfaction and pride in the tremendous strides that the Faculty has made in becoming one of the premier engineering Faculties in North America, at the same time it will be with a very heavy heart and extreme sadness because of the events of last August.

I would like to close these few words with an appeal to our graduates to take more interest in our Faculty's activities, and to thank you all for your continuous support to our Faculty.

M.N.S. Swamy
Dean of Engineering and Computer Science

New program makes computer use easier

More than 300 Concordia students have found computers a lot easier to use lately, thanks to a structural engineering professor who teaches at the Centre for Building Studies.

Two years ago, Kinh H. Ha started making his new computer program, C-Map, available to anyone who wanted it, free of charge.

Why would an inventor spend his evenings and weekends working on something for people to use for nothing? Because, Ha said, there was a definite need for the program to "make it easier for users to perform complex computations as they try and solve engineering analysis and design problems."

"C-Map is a most significant development," Ha said. "It is a simple language that gives access to the powerful graphics, mathematics and numerical techniques which form part of most engineering curriculum, but are rarely used because of the tediousness involved."

The program, which has more than 130 functions, covers a broad spectrum of numerical methods ranging from elementary calculus to non-linear constrained optimization, Ha said.

"It's user-friendly for both instructors and students to develop sophisticated engineering computations. It is compact (260 k-bytes), and operates in an intuitive manner that makes it suitable even to junior college students with little experience in computer programming."

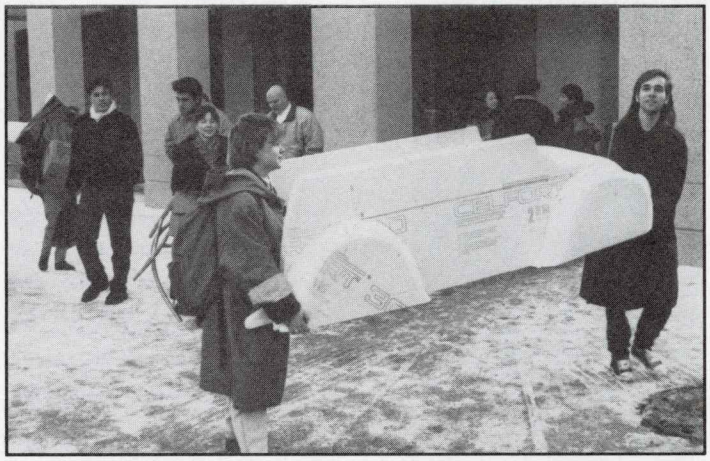
It's user-friendly for both instructors and students to develop sophisticated engineering computations.

Ha, who has been teaching at Concordia since 1973, said he's pleased with the response to C-Map, which took three years to design. People from universities in the United States, Australia, South America and Asia have written to him asking for details, he said.

Thanks to our leading supporters

Faculty Associates and members of the Deans' Circle and the Governors' Circle were guests at a reception on April 22 to acknowledge their strong support for the University through the Annual Giving Programme. Following cocktails, they enjoyed a Theatre students' production of *Life's a Dream*, by the 17th-century playwright Pedro Calderón de la Barca. *Left to right*, Mr. and Mrs. Peter Quinlan (Deans' Circle), Rector Patrick Kenniff, Mrs. Edith Low-Beer (Rector's Circle) and Dean of Fine Arts Robert Parker. PHOTO: Jonas Papaurelis

A concrete winner



Engineering students Elisabeth Gertler and Robert Bonazzuoli carry parts for their concrete toboggan into the basement of the Henry F. Hall building. They were preparing for the 19th edition of the Great Northern Concrete Toboggan Race. Concordia's entry, designed and built entirely by students in Civil and Building Engineering programmes, was one of 45 concrete sleds to go down the course at Mont Bellevue in the Eastern Townships. The event, which attracted more than 400 student engineers from across Canada, the United States and France, was hosted by the Université de Sherbrooke. Concordia's entry, *The Snowbug*, took the prize for the most aesthetic concrete toboggan in the competition.

PHOTO: Marcos Townsend

The Affiliate

The Affiliate, for supporters of the University's four Faculties, is published by the Faculty in association with the Office of University Advancement and the Public Relations Department.

The Faculty Affiliation Programme at Concordia University is a vehicle for recognition of important donors to the Annual Giving Programme. Different activities are planned for Faculty Supporters (donors of $100 or more per year), Faculty Associates (donors of $250 or more per year), and members of the Dean's Circle (donors of $500 or more per year) all of whom will receive *The Affiliate* on a regular basis.

Results of the Annual Giving Programme will be published in the *Concordia University Magazine*. *For further information, call the Office of University Advancement (514) 848-4856.*